June 14th, 2022

Jon Beem
Project Manager
D.R. Horton – Seattle Division
11241 Slater Ave NE, Suite 200
Kirkland, WA 98033

Site: 4929 Issaquah-Pine Lake Rd. SE
Issaquah, WA 98029
TPN: 2224069039
Parcel size: 230,925 sq. ft = 5.3 acres

Thank you for requesting my services. On January 5th, 2022, I performed a Level 2 Tree Risk Assessment (TRA) for all significant* trees growing on the site above, as well as the ROW trees and those trees located offsite with canopies that overhung the property.

The information gathered and included in this report is a necessary part of the of the plat development which requires that a Tree Retention Plan to be submitted as part of a proposed site development (IMC 18.12.1385) to include fifty (50) new SFR.

In summary:

Tree Density Calculations	
Total number of onsite trees	123
Total number of non-viable trees	66
Total number of viable trees	57
Total number of trees removed for site improvements	29
Total number of tree credits	2234
Total number of viable tree creds	1278
Total number of required tree credits (1278 X .3)	383
Total number of retained tree credits	549
Mitigation	0

I have included a detailed report of my findings, if you have any questions, please contact me. I can bereached on my cell phone: 425.890.3808 or by email: sprince202@aol.com.

Warm regards,

Susan Prince
Creative Landscape Solutions
ISA Certified Arborist #1481
TRAQ Certified Arborist #481
Landscape Designer
425.890.3808

*The City of Issaquah defines a significant tree as an existing healthy tree which, when measured four- and one-half feet above grade, has a minimum diameter of:

- 6” for evergreen trees and most deciduous or
- 8” for alder or cottonwood trees
- Landmark tree DBH > 30” (18.12.030)

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Personal qualifications, scope of work and methodology:

To evaluate the trees and prepare the report, I drew on my formal college education in botany and the preparation and training used to obtain my ISA certification. In addition to my education and certification, I relied heavily on my training to obtain my certification as a Tree Risk Assessor. I have been worked in arboriculture since 1995 and been an ISA Certified Arborist since 1999. I have been TRACE/TRAQ qualified since 2009.

I followed protocol delineated by the International Society of Arboriculture (ISA) for Level 2 Tree Risk Assessment (TRA). By doing so, I am examining each tree independently as well as collectively as groups or stands of trees provide stability and can lower risk of independent tree failure. This scientific process examines tree health (e.g., size, vigor, and insect and disease process) as well as site conditions (soil moisture and composition, quantity of impervious surfaces surrounding the tree etc.)

Methods used to determine tree location and tree health:

Trees were identified previously by numbered aluminum tags attached to the western side of the tree. All the trees on site were examined using the Matheny and Clark[1] criteria for determining the potential hazard of trees in an urban environment as well as the Tree Risk Assessment in Urban Areas and The Urban/Rural Interface by Julian Dunster[2]. Tree diameters were measured using a logger's tape, and tree driplines were measured in four directions, if necessary, by a Nikon Forestry PRO Laser Rangefinder™.

Abbreviated Legend (See report for greater detail)

1. Numerical ordering
2. Tree tag #: numbered aluminum tags attached to the trees in the field
3. Tree species ID: common and botanical names
    - Apple: *Malus sp.*
    - American sycamore: *Plantanus occidentalis*
    - Austrian pine: *Pinus nigra*
    - Bigleaf maple: *Acer macrophyllum*
    - Birch: *Betula nigra*
    - Bitter Cherry: *Prunus emarginata*
    - Blue atlas cedar: *Cedrus atlantica 'Glauca'*
    - Cedar: *Thuja plicata*
    - Cherry: *Prunus sp.*
    - Dawn redwood: *Chamaecyparis nootkatensis*
    - Deodora cedar: *Cedrus deodara*
    - Colorado blue spruce: *Picea pungens*
    - Cottonwood*: Populus trichocarpa*
    - Dogwood*: Cornus nuttallii*
    - Douglas fir: *Pseudotsuga menziesii*
    - English laurel: *Prunus laurocerasus*
    - Filbert: *Corylus avellana var.*
    - Grand fir: *Abies grandis*
    - Hemlock: *Tsuga hetrophylla*
    - Holly: *Ilex aquifolium*
    - Japanese maple: *Acer palmatum*
    - Leylandii cypress: *Cupressocyparis leylandii*
    - Lodgepole pine*: Pinus contorta*
    - Mountain ash: *Sorbus americana*
    - Mountain hemlock: *Tsuga mertensiana*
    - Pear: *Pyrus sp.*
    - Plum: *Prunus*
    - Red Alder: *Alnus rubra*
    - Red maple: *Acer rubrum*
    - Walnut: *Juglans sp.*
    - Western red cedar: *Thuja plicata*
    - Weeping Alaska cedar*: Metasequoia glyptostrobides*
    - White pine*: Pinus strobus*
4. DBH: diameter of the tree measured in inches at 4' above grade
5. Adj. DBH: multiple trunk tree DBH in inches calculated per municipality directives
6. Dripline Radius: measurement in feet of the tree canopy from tree trunk to outermost branch tip via laser rangefinder

7. Windfirm: whether the tree is not protected by other structures of trees remains windfirm
8. Health: a measurement of overall tree vigor and vitality rated as excellent, good, OK, fair or poor based on an assessment of crown density, leaf color and size, active callusing, shoot growth rate, extent of crown dieback, cambium layer health, and tree age

    - Excellent: Tree is an ideal specimen for the species with no obvious flaws
    - Good: Tree has minimal structural or situational defects
    - OK: Minimal structural issues with poor
    - Fair: Tree has structural or health issues that predispose it to failure if further stressed but can be retained in a grove of 3 or more trees
    - Poor: Tree has significant structural and/or health issues. It is exempt from total tree count.

9. Defects/Concerns: a measure of the tree's structural stability and failure potential based on assessment of specific structural features, e.g., decay, conks, co-dominant trunks, included bark, abnormal lean, one-sided canopy, history of failure, prior construction impact, pruning history, etc.
10. Proposed actions:

    - Retain
    - Remove due to planned development (tree is otherwise healthy)
    - Hazardous: A hazardous tree is one that is so affected by a significant structural defect or disease or in permanent decline that falling, or failure appears imminent, and that otherwise currently poses a threat to life or property and the risk of failure per the most recent adopted ISA standard tree risk assessment evaluation must be rated greater than or equal to "high" as measured on the tree risk assessment form. (IMC 18.12.030)

11. Limits of disturbance/Tree protection zone: the area surrounding the tree that defines the area that surrounds the trunk that cannot be encroached upon during construction. This may be a multiple of the trunk diameter (1 -1.5 times the trunk diameter converted to feet) or it may be related to the width of the canopy. It is always determined by tree species and environment and is up to the discretion of the ISA Certified Arborist to determine. In the City of Issaquah, the LOD is understood to be the dripline of the tree.
12. Measure of tree "value" may be determined by municipality formula or a direct measure of the trunk diameter, or a numerical count to determine significance; also included on the status of the tree determined by the city to designate exceptional sized or species trees (not always present) In the City of Issaquah, the tree "value" is equal to the trees DBH

Specific Tree Observations:

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
1	309	Lombardy poplar	40	40	10			OK	Asymmetric canopy towards south, typical of species	1			10	10	10	10	40	40	40
2	310	Lombardy poplar	34	34	12		Y	Fair	Co-dominant leaders with included bark x2 @ 6', dead wood, broken branches, typical of species	1			12	12	12	12	34	34	34
3	311	Douglas fir	14	14	18			OK	Dead wood, broken branches, asymmetric canopy towards south, thin canopy, typical of species	1			18	18	18	18	14	14	14
4	312	Douglas fir	12	12	16			OK	Co-dominant canopy, dead wood, broken branches, dead twigs, lean towards north	1			16	16	16	16	12	12	12
5	313	Lombardy poplar	36	36	10			OK	Dead wood, broken branches, typical of species	1			10	10	10	10	36	36	36
6	314	Douglas fir	18, 6	19	18			OK	Co-dominant leaders with included bark x2 @ 4', asymmetric canopy towards east, thin canopy, dead wood, broken branches, typical of species	1			18	18	18	18	19	19	19
7	315	Douglas fir	16	16	18			OK	Asymmetric canopy towards east, co-dominant canopy, thin canopy, dead wood, broken branches, typical of species	1			18	18	18	18	16	16	16
8	316	Douglas fir	20	20	18			OK	Co-dominant canopy, thin canopy, typical of species	1			18	18	18	18	20	20	20

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
9	317	Douglas fir	14	14	18		Y	Fair	Co-dominant canopy, previous top loss, elongated branches, asymmetric canopy towards east, typical of species	1			18	18	18	18	14	14	14
10	318	Douglas fir	6, 6, 4, 3	10	12			OK	Co-dominant leaders with included bark x4 @ root crown, suppressed canopy, typical of species	1			12	12	12	12	10	10	10
11	319	Western red cedar	14, 14, 12, 11, 6	26.5	14		Y	Fair	Co-dominant leaders with included bark x5 @ 2', thin canopy, typical of species	1			14	14	14	14	27	27	27
12	320	Western red cedar	14	14	18			OK	Suppressed canopy, thin canopy, dead wood, broken branches	1			18	18	18	18	14	14	14
13	321	Western red cedar	8, 7, 8	13.5	14		Y	Fair	Co-dominant leaders with included bark x3 @ 2', suppressed canopy, thin canopy	1			14	14	14	14	14	14	14
14	322	Douglas fir	28	28	20			OK	Low live crown ratio <30%, dominant canopy, dead wood, broken branches, typical of species	1			20	20	20	20	28	28	28
15	323	Western red cedar	12, 6	13.5	16			OK	Co-dominant leaders with included bark x2 @ 3', suppressed canopy, asymmetric canopy towards east, dead wood, broken branches, typical of species	1			16	16	16	16	14	14	14

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
16	324	Douglas fir	22	22	24			OK	Dominant canopy, hanger, asymmetric canopy towards east, typical of species	1			24	24	24	24	22	22	22
17	325	Western red cedar	10, 8, 10	16	14			OK	Co-dominant leaders with included bark x3 @ 3', suppressed canopy, thin canopy, low live crown ratio <30%	1			14	14	14	14	16	16	16
18	326	Bigleaf maple	18, 10	20.5	26			OK	Co-dominant leaders with included bark x3 reduced to 2 @ root crown, moss and lichen, asymmetric canopy towards east, typical of species			1	26	26	26	26	21	21	
19	327	Cherry	36	36	28			Fair	Exposed roots, moss and lichen, multiple cavities in trunk		1		28	28	28	28	36		
20	328	Colorado blue spruce	16	16	12			Fair	Topped @ 12', multiple poor leaders		1		12	12	12	12	16		
21	329	Douglas fir	24	24	18			OK	Co-dominant canopy, exposed roots, moss and lichen, asymmetric canopy towards east, typical of species			1	18	18	18	18	24	24	
22	330	Douglas fir	29	29	20		Y	Fair	Co-dominant leaders with included bark x2 @ 12', torque crack @ 3' up to 12' towards west, dead wood, broken branches, asymmetric canopy towards east, typical of species			1	20	20	20	20	29	29	

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
23	331	Douglas fir	29	29	18			OK	Exposed roots, thin canopy, typical of species			1	18	18	18	18	29	29	
24	332	Douglas fir	33	33	20		Y	Fair	Co-dominant leaders with included bark x2 @ 40', dead wood, broken branches, previous top loss, elongated branches			1	20	20	20	20	33	33	
25	333	Douglas fir	33	33	18			OK	Slight self-corrected lean towards west, asymmetric canopy towards east, previous top loss, elongated branches, dead wood, broken branches, low live crown ratio <30%			1	18	18	18	18	33	33	
26	334	Douglas fir	23	23	18		Y	Fair	Previous top loss, elongated branches, weak leader, asymmetric canopy towards east			1	18	18	18	18	23	23	
27	335	Douglas fir	33	33	20			OK	Previous top loss, elongated branches, dead wood, broken branches, typical of species			1	20	20	20	20	33	33	
28	336	Bigleaf maple	34	34	24			OK	Girdled roots, co-dominant leaders with included bark x4 @ 6', moss and lichen, previous top loss, asymmetric canopy towards west			1	24	24	24	24	34	34	
29	337	Douglas fir	44	44	24			OK	Previous top loss, elongated branches, dead wood, broken branches, exposed roots, typical of species			1	24	24	24	24	44	44	

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
30	338	Douglas fir	18	18	18			OK	Dead wood, broken branches, low live crown ratio <30%, typical of species	1			18	18	18	18	18	18	18
31	339	Dawn redwood	8	8	10		Y	Fair	Vertical crack @ 2' up to 3' towards north, previous top loss @ 30', weak leader, suppressed canopy	1			10	10	10	10	8	8	8
32	340	Douglas fir	24	24	18		Y	Fair	Previous top loss, elongated branches, dead wood, broken branches, co-dominant leaders with included bark x2 @ 25'	1			18	18	18	18	24	24	24
33	341	Douglas fir	27	27	18			OK	Previous top loss, elongated branches, dead wood, broken branches, dominant canopy, typical of species	1			18	18	18	18	27	27	27
34	342	Western red cedar	13	13	14			OK	Lean towards west, thin canopy, co-dominant canopy	1			14	14	14	14	13	13	13
35	343	Douglas fir	24	24	18			OK	Hanger, co-dominant canopy, typical of species	1			18	18	18	18	24	24	24
36	344	Western red cedar	7, 7	10	14			OK	Co-dominant leaders with included bark x2 @ root crown, suppressed canopy, thin canopy, typical of species	1			14	14	14	14	10	10	10
37	345	Incense cedar	6, 8, 16	19	16			OK	Co-dominant leaders with included bark x3 @ root crown, typical of species			1	16	16	16	16	19	19	
38	346	White pine	14	14	12			OK	Thin canopy, free flowing sap, typical of species	1			12	12	12	12	14	14	14

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
39	347	White pine	24	24	15			OK	Dead wood, broken branches, moss and lichen, typical of species			1	15	15	15	15	24	24	
40	348	Norway spruce	18	18	16		Y	Fair	Spruce adelgid, dead wood, broken branches, no taper, exposed roots			1	16	16	16	16	18	18	
41	349	Norway spruce	18	18	16		Y	Fair	Self-corrected lean towards south, dead wood, broken branches, moss and lichen, Spruce adelgid			1	16	16	16	16	18	18	
42	350	Western red cedar	26	26	14			OK	Dominant canopy, dead wood, broken branches, dead twigs, typical of species			1	14	14	14	14	26	26	
43	351	Deodora cedar	23	23	16			OK	Cavity @ root crown up to 5' towards east, abnormal bark, shedding bark, thin canopy, dead wood, broken branches, typical of species			1	16	16	16	16	23	23	
44	352	Deodora cedar	25	25	18			OK	Topped @ 25', strong leaders, cabling rope? @ 35'			1	18	18	18	18	25	25	
45	353	White pine	24	24	18		Y	Fair	No taper, bulge @ root crown, co-dominant leaders with included bark x2 @ 20', low live crown ratio <20%			1	18	18	18	18	24	24	
46	354	Deodora cedar	36	36	24			Fair	Previously topped @ 20', multiple weak fused leaders		1		24	24	24	24	36		
47	355	White pine	30	30	20			Fair	Self-corrected lean towards south, thin canopy		1		20	20	20	20	30		

1	2	3	4	5	6	7		8	9	10			11				12		
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										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
48	356	Colorado blue spruce	19	19	16			OK	Free flowing sap, Spruce adelgid, dead wood, broken branches, typical of species			1	16	16	16	16	19	19	
49	357	Colorado blue spruce	18	18	14			OK	Asymmetric canopy towards east, dead wood, broken branches, dead twigs, Spruce adelgid			1	14	14	14	14	18	18	
50	358	Colorado blue spruce	17	17	14			OK	Asymmetric canopy towards east, dead wood, broken branches, dead twigs, Spruce adelgid			1	14	14	14	14	17	17	
51	359	Chestnut	16, 15, 12	25	20			Fair	Co-dominant leaders with included bark x3 @ root crown, lean towards west, moss and lichen, vertical crack @ root crown up to 3' towards east, woodpecker activity		1		20	20	20	20	25		
52	360	White pine	36	36	24			OK	Multiple large diameter leaders @ 8', dead wood, broken branches, typical of species	1			24	24	24	24	36	36	36
53	361	Apple	12, 13	17.5	14			Fair	Co-dominant leaders with included bark x2 @ root crown, moss and lichen, decay throughout, poor pruning with decay		1		14	14	14	14	18		
54	362	Apple	15	15	16		Y	Fair	Moss and lichen, poor pruning with decay, woodpecker activity, typical of species			1	16	16	16	16	15	15	
55	363	Deodora cedar	21	21	18			OK	Thin canopy, dead wood, broken branches, typical of species			1	18	18	18	18	21	21	

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
56	364	River birch	17, 22, 28	39.5	26		Y	Fair	Co-dominant leaders with included bark x3 @ root crown, moss and lichen, dead wood, broken branches, woodpecker activity, dead scaffolds			1	26	26	26	26	40	40	
57	365	Deodora cedar	35	35	21			OK	Thin canopy, hanger, typical of species			1	21	21	21	21	35	35	
58	366	Cherry	19	19	18			Fair	Woodpecker activity, exposed roots, gummosis, moss and lichen, cavity @ root crown up to 1' towards south		1		18	18	18	18	19		
59	367	River birch	8, 9	12	10			Poor	Co-dominant leaders with included bark x2 @ root crown, girdled by tractor equipment		1		10	10	10	10	12		
60	368	River birch	10	10	16			Poor	Moss and lichen, lean towards east, girdled by plastic		1		16	16	16	16	10		
61	373	Douglas fir	17	17	12			Poor	Topped @ 30'		1		12	12	12	12	17		
62	374	Douglas fir	22	22	12			Poor	Topped @ 20'		1		12	12	12	12	22		
63	375	Western red cedar	14	14	16			Poor	Tag on #376, topped @ 30'		1		16	16	16	16	14		
64	376	Douglas fir	14	14	18			Poor	Topped @ 30'		1		18	18	18	18	14		
65	377	Douglas fir	18	18	16			Poor	Topped @ 30'		1		16	16	16	16	18		
66	378	Douglas fir	14	14	16			Poor	Topped @ 20'		1		16	16	16	16	14		
67	379	Douglas fir	10	10	6			Poor	Mostly dead, topped @ 15'		1		6	6	6	6	10		

1	2	3	4	5	6	7		8	9	10			11				12		
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										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
68	380	Douglas fir	16, 15	22	18			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 15', asymmetric canopy towards west		1		18	18	18	18	22		
69	381	Douglas fir	9	9	2			Poor	Topped @ 20', mostly dead		1		2	2	2	2	9		
70	382	Douglas fir	10	10	8			Poor	Topped @ 20'		1		8	8	8	8	10		
71	383	Douglas fir	12	12	18			Poor	Topped @ 20', weak leader, asymmetric canopy towards west		1		18	18	18	18	12		
72	384	Douglas fir	16, 14, 6	22	18			Poor	Co-dominant leaders with included bark x3 @ root crown, topped @ 20', weak leaders, asymmetric canopy towards west		1		18	18	18	18	22		
73	385	Douglas fir	23	23	20			Poor	Topped @ 15', asymmetric canopy towards west		1		20	20	20	20	23		
74	386	Douglas fir	14	14	10			Poor	Topped @ 20'		1		10	10	10	10	14		
75	387	Douglas fir	8	8	6			Poor	Tag on #386, topped @ 20', mostly dead, conks		1		6	6	6	6	8		
76	388	Douglas fir	12	12	12			Poor	Tag on #386, topped @ 30', leaning on power lines towards east		1		12	12	12	12	12		
77	389	Hemlock	16	16	6			Poor	Tag on #391, topped @ 20'		1		6	6	6	6	16		
78	390	Douglas fir	8	8	6			Poor	Tag on #391, topped @ 20'		1		6	6	6	6	8		
79	391	Hemlock	12	12	8			Poor	Topped @ 20'		1		8	8	8	8	12		
80	393	Douglas fir	14	14	8			Poor	Topped @ 20'		1		8	8	8	8	14		

1	2	3	4	5	6	7		8	9	10			11				12		
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										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
81	394	Douglas fir	8	8	8			Poor	Tag on #395, topped @ 20'		1		8	8	8	8	8		
82	395	Norway spruce	14	14	12			Poor	Topped @ 20'		1		12	12	12	12	14		
83	396	Red alder	8, 9	12	16			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 20', asymmetric canopy towards east, moss and lichen		1		16	16	16	16	12		
84	397	Lombardy poplar	40	40	14			OK	Hanger, dead wood, broken branches, moss and lichen, typical of species			1	14	14	14	14	40	40	
85	398	Red alder	15	15	16			Poor	Vertical crack @ root crown up to 10' towards south, moss and lichen, previous top loss, conks		1		16	16	16	16	15		
86	399	Hawthorne	9, 14, 6, 6	18.5	16			Poor	Co-dominant leaders with included bark x4 @ 1', moss and lichen, previous scaffold failure, twisted fused trunks, woodpecker activity		1		16	16	16	16	19		
87	400	Douglas fir	14, 16	21.5	16			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 25'		1		16	16	16	16	22		
88	401	Cherry	14, 9, 9	19	8			Poor	Co-dominant leaders with included bark x3 @ root crown, mostly dead, topped @ 15'		1		8	8	8	8	19		
89	402	Douglas fir	9	9	14			Poor	Topped @ 15', heaved soil		1		14	14	14	14	9		
90	403	Douglas fir	12	12	14			Poor	Topped @ 30'		1		14	14	14	14	12		

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
91	404	Douglas fir	16, 16	22.5	16			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 20'		1		16	16	16	16	23		
92	405	Douglas fir	14, 16	21.5	16			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 30'		1		16	16	16	16	22		
93	412	Douglas fir	47	47	20			Poor	Dead wood, broken branches, hangers, typical of species		1		20	20	20	20	47		
94	414	Western red cedar	8	8	10			OK	Typical of species	1			10	10	10	10	8	8	8
95	415	Bigleaf maple	12, 10, 9, 5	18.5	15		Y	Fair	Co-dominant leaders with included bark x4 @ root crown, moss and lichen, previous top loss @ 15', typical of species	1			15	15	15	15	19	19	19
96	416	Bigleaf maple	15	15	15			OK	Moss and lichen, typical of species			1	15	15	15	15	15	15	
97	419	Douglas fir	20	20	20			Poor	Topped @ 15'		1		20	20	20	20	20		
98	420	Douglas fir	12	12	8			Poor	Topped @ 15'		1		8	8	8	8	12		
99	421	Douglas fir	14, 12, 4	19	10			Poor	Co-dominant leaders with included bark x3 @ 2', topped @ 15', conks		1		10	10	10	10	19		
100	422	Douglas fir	14	14	10			Poor	Topped @ 10', conks		1		10	10	10	10	14		
101	423	Douglas fir	14, 10	17	12			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 10'		1		12	12	12	12	17		
102	424	Douglas fir	8	8	16			Poor	Tag on #425, asymmetric canopy towards east, topped @ 25'		1		16	16	16	16	8		

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
103	425	Douglas fir	10	10	12			Poor	Topped @ 15', asymmetric canopy towards west, conks		1		12	12	12	12	10		
104	426	Douglas fir	14, 12	18.5	14			Poor	Topped @ 15', conks, co-dominant leaders with included bark x2 @ root crown		1		14	14	14	14	19		
105	427	Douglas fir	8	8	12			Poor	Tag on #428, self-corrected lean towards west, lean towards east, topped @ 20'		1		12	12	12	12	8		
106	428	Douglas fir	13	13	14			Poor	Topped @ 15', conks		1		14	14	14	14	13		
107	429	Douglas fir	10, 8	13	10			Poor	Co-dominant leaders with included bark x2 @ root crown, topped @ 10'		1		10	10	10	10	13		
108	433	Douglas fir	11	11	10			Poor	Topped @ 10'		1		10	10	10	10	11		
109	434	Douglas fir	16	16	8			Poor	Topped @ 15', mostly dead		1		8	8	8	8	16		
110	435	Douglas fir	8	8	6			Poor	Topped @ 15'		1		6	6	6	6	8		
111	436	Douglas fir	20, 12, 8	24.5	16			Poor	Co-dominant leaders with included bark x3 @ root crown, topped @ 15', dead wood, broken branches, moss and lichen, conks		1		16	16	16	16	25		
112	437	Cherry	14, 8	16	18		Y	Fair	Co-dominant leaders with included bark x2 @ root crown, moss and lichen, dead wood, broken branches, exposed roots, typical of species			1	18	18	18	18	16	16	

1	2	3	4	5	6	7		8	9	10			11				12		
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				DBH	Healthy DBH	Retained DBH
										Ret.	Remove		Radius in feet						
										Viable	Non-viable	Construction	N	W	E	S			
113	438	Cherry	9, 11	14	16			OK	Co-dominant leaders with included bark x2 @ root crown, self-corrected lean towards west, moss and lichen, dead wood, broken branches, exposed roots, typical of species			1	16	16	16	16	14	14	
114	439	Douglas fir	15	15	15			Poor	Topped @ 15'		1		15	15	15	15	15		
115	440	Douglas fir	8	8	8			Poor	Topped @ 10', taps hollow		1		8	8	8	8	8		
116	441	Douglas fir	8	8	4			Poor	Conks, mostly dead		1		4	4	4	4	8		
117	442	Douglas fir*	9	9	6			Poor	Topped @ 10', conks		1		6	6	6	6	9		
118	443	Douglas fir	16	16	10			Poor	Topped @ 10', conks		1		10	10	10	10	16		
119	444	Douglas fir	12	12	8			Poor	Mostly dead, topped @ 10', taps hollow		1		8	8	8	8	12		
120	445	Douglas fir	16	16	6			Poor	Tag on #444, mostly dead		1		6	6	6	6	16		
121	446	Douglas fir	18	18	14			Poor	Tag on #444, topped @ 15'		1		14	14	14	14	18		
122	447	Douglas fir	14	14	18			Poor	Tag on #444, topped @ 20', lean towards west		1		18	18	18	18	14		
123	448	Douglas fir	15	15	10			Poor	Tag on #444, topped @ 20'		1		10	10	10	10	15		
									123	28	66	29					2334	1278	549

* shared tree

Offsite potentially impacted trees:

1	2	3	4	5	6	7		8	9	10			11			
#	Tree Tag #	Species ID	DBH inches	Adj. DBH inches	Drip-line radius feet	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD			
										Retain			Radius in feet			
										Viable	Non- viable		N	W	E	S
1	A	Deodora cedar	24	24	12			OK	Asymmetric canopy towards west, thin canopy, east side branches removed for power	1			12	12	12	12
2	B	Silver maple	16	16	18			OK	Moss and lichen, co-dominant leaders with included bark x2 @ 10'	1			18	18	18	18
3	C	Cherry	22	22	24			Poor	Previous large scaffold failure @ 12' towards east		1		24	24	24	24
4	D	Maple	12	12	5 over fence			OK	Typical of species	1			5	5	5	5
5	F	Maple	12	12	5 over fence			OK	Typical of species		1		5	5	5	5
6	G	Maple	12	12	5 over fence			OK	Typical of species		1		5	5	5	5
7	H	Maple	12	12	5 over fence			OK	Typical of species	1			5	5	5	5
8	I	Maple	12	12	5 over fence			OK	Typical of species	1			5	5	5	5
9	J	Maple	10	10	5 over fence			OK	Typical of species		1		5	5	5	5
10	K	Maple	10	10	5 over fence			OK	Typical of species	1			5	5	5	5

1	2	3	4	5	6	7		8	9	10			11			
#	Tree Tag #	Species ID	DBH inches	Adj. DBH inches	Drip-line radius feet	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD			
										Retain			Radius in feet			
										Viable	Non- viable		N	W	E	S
11	L	Maple	10	10	5 over fence			OK	Typical of species	1			5	5	5	5
12	M	Maple	10	10	5 over fence			OK	Typical of species	1			5	5	5	5
13	N	Maple	10	10	5 over fence			OK	Typical of species	1			5	5	5	5
14	O	Maple	10	10	5 over fence			OK	Typical of species	1			5	5	5	5
15	301	Douglas fir	28	28	24		Y	Fair	Topped @ 35' for power, strong leaders, elongated branches			1	24	24	24	24
16	302	Douglas fir	14	14	14			Poor	Topped @ 35' for power, dead wood, broken branches, elongated branches		1		14	14	14	14
17	303	Douglas fir	34	34	22			Fair	Topped @ 35' for power, weak laterals, dead wood, broken branches, elongated branches		1		22	22	22	22
18	304	Douglas fir	10	10	8			Poor	Topped @ 35' for power, low live crown ratio <1%		1		8	8	8	8
19	305	Douglas fir	16	16	15			Poor	Topped @ 35' for power, low live crown ratio <1%		1		15	15	15	15
20	306	Douglas fir	20	20	20		Y	Fair	Topped @ 35' for power, low live crown ratio <5%, dead wood, broken branches			1	20	20	20	20
21	307	Douglas fir	14	14	24			Poor	Topped @ 35' for power, moss and lichen, low live crown ratio <5%		1		24	24	24	24

1	2	3	4	5	6	7		8	9	10			11			
#	Tree Tag #	Species ID	DBH inches	Adj. DBH inches	Drip-line radius feet	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD			
										Retain			Radius in feet			
										Viable	Non- viable		N	W	E	S
22	308	Douglas fir	20	20	24			Poor	Topped @ 35' for power, dead wood, broken branches, elongated branches, leader failure @ 30' towards west		1		24	24	24	24
23	392	Hemlock	18	18	14			Poor	Topped @ 15'		1		14	14	14	14
24	406	Douglas fir	16	16	16			Poor	Topped @ 30'		1		16	16	16	16
25	407	Douglas fir	10	10	18			Poor	Topped @ 30'		1		18	18	18	18
26	408	Douglas fir	16	16	18			Poor	Topped @ 30', asymmetric canopy towards west		1		18	18	18	18
27	409	Douglas fir	22	22	18			Poor	Topped @ 30', co-dominant leaders with included bark x2 @ 20', asymmetric canopy towards west		1		18	18	18	18
28	410	Douglas fir	12	12	16			Poor	Tag on #409, topped @ 30'		1		16	16	16	16
29	411	Douglas fir	16	16	16			Poor	Tag on #409, topped @ 30'		1		16	16	16	16
30	413	Douglas fir	26	26	18			OK	Hanger, dead wood, broken branches, typical of species	1			18	18	18	18
31	417	Red alder	16	16	12			Poor	Tag on post southwest, decay throughout, topped @ 20'		1		12	12	12	12
32	418	Douglas fir	18	18	16			Poor	Topped @ 15'		1		16	16	16	16
33	430	Douglas fir	8	8	6			Poor	Mostly dead, topped @ 8'		1		6	6	6	6
34	431	Douglas fir	8	8	10			Poor	Tag on #430, topped @ 10'		1		10	10	10	10
35	432	Douglas fir	9	9	14			Poor	Tag on #430, topped @ 25'		1		14	14	14	14

1	2	3	4	5	6	7		8	9	10			11			
#	Tree Tag #	Species ID	DBH inches	Adj. DBH inches	Drip-line radius feet	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD			
										Retain			Radius in feet			
										Viable	Non- viable		N	W	E	S
36	442	Douglas fir*	9	9	6			Poor	Topped @ 10', conks		1		6	6	6	6
* shared tree										36	11	23	2			

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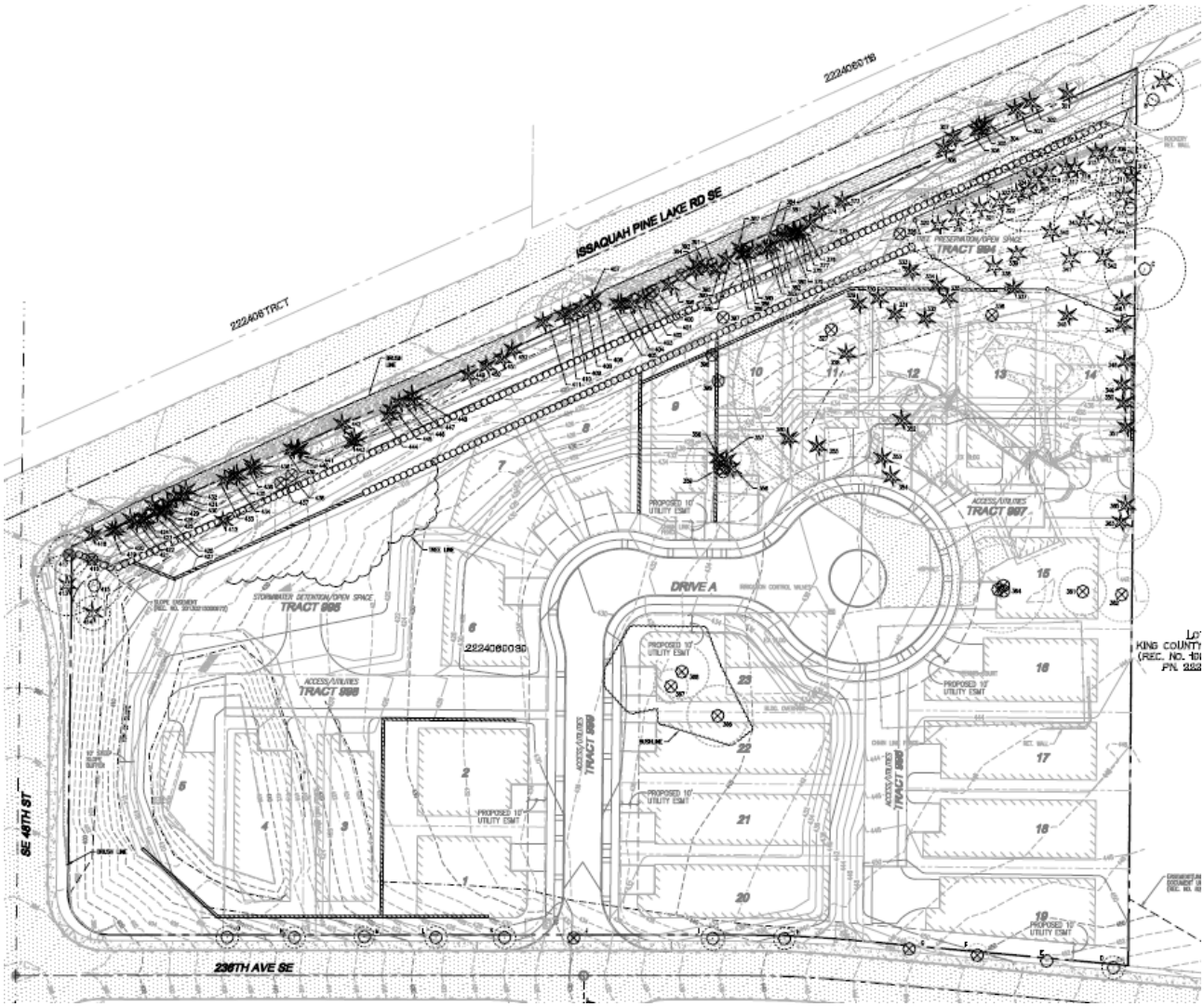
Site:

Proposed site improvements:



Discussion and Conclusion:

Tree Density Calculations	
Total number of onsite trees	123
Total number of non-viable trees	66
Total number of viable trees	57
Total number of trees removed for site improvements	29
Total number of tree credits	2234
Total number of viable tree creds	1278
Total number of required tree credits (1278 X .3)	383
Total number of retained tree credits	549
Mitigation	0

The McLean Project is a 5.3-acre site located west of Issaquah/ Pine Lake Road in Issaquah. The parcel is accessed from the east by an asphalt drive up to a single-family residence located on the south side of the property. the parcel has a grove of trees located between the home and Issaquah Pine Lake Road; the remainder of the site has been cleared as pasture.

It appears Issaquah Pine Lake Road was constructed by excavating a steep hillside. The hillside is not constrained by a retaining wall and in some places the soil has been undermined by weather. Over the years trees have volunteered in the area whose growth has been "maintained" by the utility department. Many of the trees are now at high risk of failure, growing on a bank of soil, undermined by weather, and topped by utilities. For this reason, I deemed some trees located where it was too hazardous to individually tag. Those trees are identified on the spreadsheet with the tag location identified on surrounding trees.

Almost all of the trees on the eastside of the property next to the road are non-viable, those that are not, are proposed to be removed; the east side of the property will include new two retaining walls to adequately constrain the slope.

Proposed improvements include demolishing the existing home, garage and outbuildings and grading the site, and dividing the acreage into twenty-three (23) new single family residential lots. There is a new access proposed from the west.

Most of the viable trees are located on the SE corner of the site which will be maintained as a tree tract. The non-viable trees in this area can be retained (without credit) as habitat trees, however, at the conclusion of the build out the trees should be reassessed to ensure that they do not present a risk to traffic, pedestrians, or new homes; if they do so, they can be reduced in height to mitigate that risk.

The site has one hundred-twenty-three (123) onside trees, sixty-six (66) are non-viable. Of the fifty-seven (57) viable trees, twenty-nine (29) are proposed to be removed for site improvements, twenty-eight (28) trees are proposed to be retained.

The site has a total of 2234 DBH inches; 1278 DBH inches are viable. City of Issaquah code requires that 30% of the tree DBH inches be retained or 1278*.3 = 383 DBH inches. The project proposes to retain 549 DBH inches. Most of the retained trees are located on the SE corner in Tract 994, and several are located on the north side of the site behind a fence.

There are thirty-six (36) offsite trees potentially impacted by the proposed site improvements. Twenty-three (23) trees ae non-viable (many located on the east side of the site) of the thirteen (13) viable trees two (2) are in easement that will need to be removed for access or site improvements. No mitigation is necessary.

Glossary:

ANSI A300: American National Standards Institute (ANSI) standards for tree careChlorotic:

discoloration caused by lack of chlorophyll in the foliage

Conifer: A tree that bears cones and has evergreen needles or scales

Crown: the above ground portion of the tree comprised of branches and their foliage

Crown raise pruning: a pruning technique where the lower branches are removed, thus raising theoverall height of the crown from the ground

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade

Deciduous: tree or other plant that loses its leaves annually and remains leafless generally during the cold season

Epicormic: arising from latent or adventitious buds

Evergreen: tree or plant that keeps its needles or leaves year-round; this means for more than one growing season

Increment: the amount of new wood fiber added to a tree in each period, normally one year.

ISA: International Society of Arboriculture

Landscape function: the environmental, aesthetic, or architectural functions that a plant can have

Lateral: secondary or subordinate branch

Limits of disturbance: The boundary of minimum protection around a tree, the area that cannot be encroached upon without possible permanent damage to the tree. It is a distance determined by a qualified professional and is based on the age of the tree, its health, the tree species tolerance to disruption and the type of disturbance. It also considers soil and environmental condition and previous impacts. It is unique to each tree in its location.

Limited visual assessment: a visual assessment from a specified perspective such as foot, vehicle, or aerial (airborne) patrol of an individual tree or a population of trees near specified targets to identify specified conditions or obvious defects (ISA 2013)

Live crown ratio: the percentage of living tissue in the canopy versus the tree's height. It is a good indicator of overall tree health and the trees growing conditions. Trees with less than a 30% Crown ratio often lack the necessary quantity of photosynthetic material necessary to sustain the roots; consequently, the tree may exhibit low vigor and poor health.

Monitoring: keeping a close watch; performing regular checks or inspections

Owner/manager: the person or entity responsible for tree management or the controlling authority that regulates tree management

Pathogen: causal agent of disease

Phototropic growth: growth toward light source or stimulant

ROW: Right-of-way; generally referring to a tree that is located offsite on a city easement

Reaction wood: Specialized secondary xylem which develops in response to a lean or similar mechanical stress, it serves to help restore the stem to a vertical position

Self-corrected lean: a tree whose trunk is at an angle to the grade but whose trunk and canopy changes to become upright/vertical

Significant tree: a tree measuring a specific diameter determined by the municipality the tree grows in. Some municipalities deem that only healthy trees can be significant, other municipalities consider both healthy and unhealthy trees of a determined diameter to be significant

Snag: a tree left partially standing for the primary purpose of providing habitat for wildlife

Soil structure: the size of particles and their arrangement; considers the soil, water, and air space

Sounding: process of striking a tree with a mallet or other appropriate tool and listening for tones that indicate dead bark, a thin layer of wood outside a cavity, or cracks in wood

Structural defects: flaws, decay, or other faults in the trunk, branches, or root collar of a tree, which may lead to failure; may be genetic, or environmental

Tree credit: A number assigned to a tree by a municipality that may be equal to the diameter of the tree or a numerical count of the tree, or related to diameter by a factor conveyed in a table of the municipal code

Trunk area: the cross-sectional area of the trunk based upon measurement at 54 inches (4.5 ft.) above grade

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, et al 1999) detailed visual inspection of a tree and surrounding site that may include the use of simple tools. It requires that a tree risk assessor walk completely around the tree trunk looking at the site, aboveground roots, trunk, and branches (ISA 2013)

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Assumptions and Limiting Conditions

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as thou free and clear, under responsible ownership and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes or other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of the report unless subsequent contractual arrangements are made including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

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